

## CLAIMS

What is claimed is:

1. A mechanism for presenting individual liquid samples carried by spaced wells in a microwell plate or cuvettes in a rack to the end of a suspended capillary comprising:
  - 5 a support tray for said supporting plate or rack,  
x-axis drive means and y-axis drive means functionally associated with said support tray for moving said tray in the x and y directions to bring a selected well or cuvette opposite the suspended capillary,  
z-axis drive means functionally associated with said tray for moving said support tray in  
10 the z direction to immerse the end of the capillary in a liquid sample carried in said well or cuvette; and  
drive control means for controlling the z-axis drive means to lower the support tray when the support tray is moved in the x or y directions so that it can move without damaging the suspended capillary and raising the support tray to bring the liquid in a selected cuvette or  
15 microwell into cooperation with the end of the capillary.
2. A mechanism as in claim 1 in which the z-axis drive means comprises a motor driven cam.
3. A mechanism as in claims 1 or 2 in which the x-axis and y-axis drive means comprise motor driven lead screws.
- 20 4. A cytometer system in which sample liquid is drawn from a sample container in an array of sample containers past an analyzing volume in a capillary by immersing the suspended end of the capillary in the sample liquid and drawing the liquid sample past the analyzing volume including
  - 25 a mechanism for sequentially translating individual sample containers to a position opposite the end of the suspended capillary and then lifting the container to immerse the end of the capillary in the liquid so that the liquid can be drawn through the capillary.
5. A cytometer system as in claim 4 including a stirrer adapted to stir the liquid in a sample container.

6. A mechanism for mixing and presenting individual liquid samples carried by spaced wells in a microwell plate or cuvettes in a rack to the end of a suspended capillary comprising:  
a mixing means associated with said capillary;  
a support tray for said supporting plate or rack,
- 5 x-axis drive means and y-axis drive means functionally associated with said support tray for moving said tray in the x and y directions to bring a selected well or cuvette opposite the suspended capillary,  
z-axis drive means functionally associated with said tray for moving said support tray in the z direction to immerse the end of the capillary in a liquid sample carried in said well or
- 10 cuvette; and  
drive control means for controlling the z-axis drive means to lower the support tray when the support tray is moved in the x or y directions so that it can move without damaging the suspended capillary, and mixing means and raising the support tray to bring the liquid in a selected cuvette or microwell into cooperation with the mixing means and the end of the
- 15 capillary.
7. A mechanism as in claim 6 in which the z-axis drive means comprises a motor driven cam.
8. A mechanism as in claims 6 or 7 in which the x-axis and y-axis drive means comprise motor driven lead screws.
- 20 9. A mechanism as in claim 6 in which the mixing means is adjacent the capillary and includes means for moving the mixes in the z direction.
10. A mechanism as in claim 6 in which the mixing means is coaxial with and surrounds the capillary.
11. A mechanism as in claim 6 including means for vibrating the capillary.
- 25 12. A mechanism as in claim 1 in which the support tray includes cleaning wells for selectively receiving and cleaning the capillary.

13. A mechanism as in claim 6 in which the support tray includes cleaning wells for selectively receiving said mixing means and said capillary.

14. A cytometer system in which sample liquid is drawn from a sample container in an array of sample containers past an analyzing volume in a capillary by immersing the suspended end of the capillary in the sample liquid and drawing the liquid sample past the analyzing volume including:

a mechanism for supporting the individual sample containers in a first position and sequentially translating individual sample containers to a position opposite the end of the suspended capillary; and

lifting supporting means to immerse the end of the capillary in the sample liquid in the selected containers so that the liquid can be drawn through the capillary, and lowering the supporting means to repeat the translation and lifting.

15. A cytometer system as in claim 4 including a stirrer adapted to stir the liquid in a sample container.